EFFECTS OF DIFFERENT HERBIVORY MODELS IN INDUCED DEFENSIVE RESPONSES OF TOMATO.


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INTRODUCTION: *Tetranychus evansi* a plant-cell puncturing spidermite is a novel model of herbivore which silence and suppress defensive responses on tomato. When *T. evansi* interacts with *T. urticae*, intermediated responses are induced in tomato plants. However, it has not been described how tomato could respond to other interactions including different guild herbivores with different feeding mechanisms. Thus, this study aim to describe the effects of three herbivore models on induced plant defenses.

MATERIAL AND METHODS: Treatments included a) control: clean tomato plants and infested with b) *T. evansi*, c) *T. urticae*, d) *Tuta absoluta*, e) b+c, f) b+d, g) c+d. Lipoxygenase (LOX), polyphenol oxidase (POX) and lipase activities were determined by spectrophotometry.

RESULTS AND DISCUSSION: LOX activity showed higher differences between control and plants infested with *T. evansi* compared to other treatments (“c” to “g”) which did not present differences between them. This conferring the *T. evansi* ability in silence the tomato lipoxygenase pathway. The POX activity revealed a more variable profile. *T. evansi* alone significantly induced POX responses compared to control, *T. urticae* and *Tu. absoluta* treatments, but equal to the mite species interaction, suggesting intermediated effects. However, plants attacked by *T. evansi* and *Tu. absoluta* together significantly decreased the POX activity even less than control, and equal than plants attacked by only *Tu. absoluta*. This could suggest a suppression of POX by the larvae moth. Finally, the lipase profile showed a major induced activity in plants attacked by the spidermite species together, significantly higher than control and plants attacked by *T. evansi* alone but without difference within treatments “c” to “g” and these did not differ from “b”. CONCLUSIONS: Herbivory models induced different plant defense responses and interactions of those models induced intermediated responses at least in POX and Lipase activities.

Key words: Lipoxygenases, Lipases, Polyphenol oxidase

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